

Derrick[®] Modular Slurry Separation Plant maintains maximum microtunneling production

- Derrick separation plant and centrifuge provide clean drilling fluid
- Maintain maximum tunnel production

Background

A U.S.A. contractor based in the Northeast used a Derrick Modular Slurry Separation Plant and DE-7200™ VFD™ high speed, decanting centrifuge in conjunction with a Herrenknecht AVN1800 90" O.D. Microtunneling Machine in Hartford, CT. The ground conditions in Hartford are primarily clay, at times 90% of the material is -200 mesh.

Before starting the project, the contractor consulted with Derrick Equipment Company and their local agents to ensure the proper separation equipment was specified for these challenging ground conditions. It would be crucial for the contractor to have a means for handling the large chunks of clay at the front end of the plant and also plenty of centrifuge capacity downstream to handle the fine colloidal clays that are typically in the sub 2 micron range. It was decided that two Derrick Flo-Line Primers would handle the primary separation. Derrick FLC 2000 shakers and mud cleaners comprised the secondary and tertiary separations on the Modular Slurry Separation Plant. A DE-7200 centrifuge would be used to continually remove fine silts and clays on the tail end of the plant.

Solution

As anticipated, the majority of the separation was performed by the two Derrick Flo-Line Primers outfitted with 5 mesh synthetic screen belts and DE-7200 centrifuge. The conveying action of the primer removes the large, consolidated chunks of gumbo clay and other oversize material +5 mesh and above.



Derrick Modular Slurry Separation Plant and DE-7200 VFD Centrifuge



Two Derrick Flo-Line Primers handling primary separation

Clay solids were removed downstream via the DE-7200 centrifuge and polymer mixing system. The high capacity, DE-7200 centrifuge eliminated the need for the contractor to haul off dirty, solids laden fluid. The polymer mixing system introduced polymer to the feed line of the centrifuge that helped the centrifuge capture fine particles down to 0 um and obtain the semi-clear effluent. The centrifuge was able to process a maximum of 15 t/hr of dry solids, and when used in conjunction with a polymer mix system, provided a semi-clear effluent at flow rates up to 120 GPM that was clean enough to dump down the sewer.

Conclusion

The combination of the separation plant and centrifuge allowed the contractor to sufficiently clean their drilling fluid and maintain maximum tunnel production which can reach 100' per 12 hour shift. This project is an excellent example of a tunneling contractor excelling in some of the most challenging ground conditions.



Derrick FLC 2000 desilting mud cleaners



Derrick DE-7200 centrifuge solids discharge

For more information, please contact your local Derrick sales representative.

15630 Export Plaza Drive • Houston, Texas 77032 • Toll Free: (866) DERRICK • Office: (281) 590-3003 • Fax: (281) 590-6187
info@derrick.com • www.Derrick.com